



Cable Enterprise Study Session

November 27, 2018

OBJECTIVES

This presentation will provide you with information on:

- The cable industry and our part in it
- Improvements we have underway
- Crossroads we face
- The path forward

AGENDA

PART

1

Cable Industry
Evolution

PART

2

San Bruno
Cable's Situation

PART

3

The Path
Forward

A hand holding a remote control in front of a television displaying a soccer game. The entire image is overlaid with a semi-transparent blue filter.

- PART 1 -

Cable Industry Evolution

PART 1 - CABLE INDUSTRY EVOLUTION

A Brief History of Cable: Creating and Cutting the Cord (Video)



PART 1 - CABLE INDUSTRY EVOLUTION

Evolution of Cable in the U.S.

1970s–2010

CATV to Cable
*More channels and packages
= more customers and
higher costs*

2014 onwards

Internet video

2019 and on

5G, internet of things,
fiber based Gigabyte/second
internet speeds, IP Video
becomes standard

Early 2000s

Cable internet and
video/voice/data
packages

2018

Cable adopts smaller (aka
skinny) channel packages
and includes internet video

PART 1 - CABLE INDUSTRY EVOLUTION

How the Cable Industry Serves Customers, Earns & Invests Money

Cable Industry's Traditional Revenue Sources

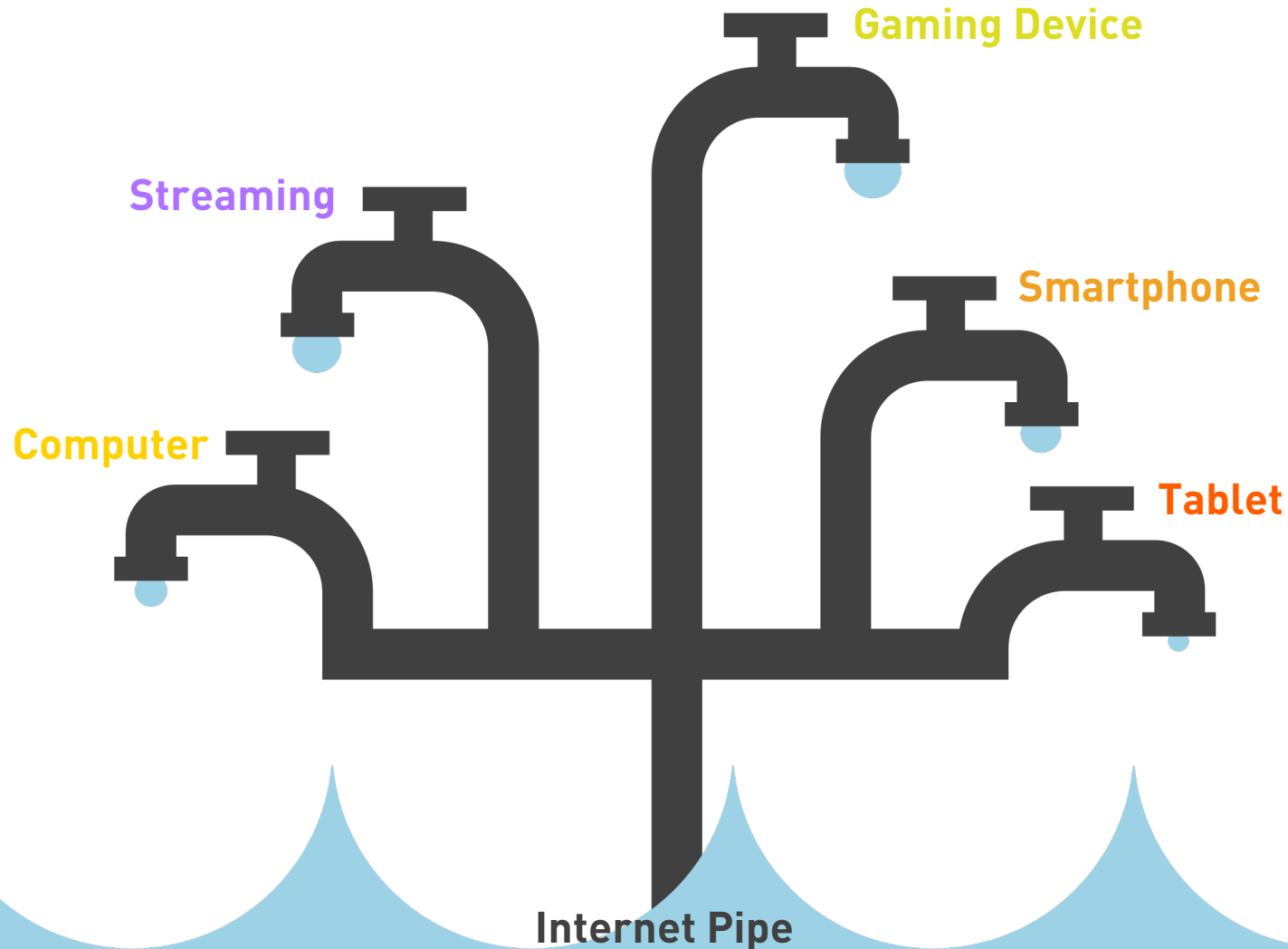
- Subscriptions: Residential Internet, Video, and Telephony
- Business Services
- Advertising avails on cable channels
- Leased Access Channel(s)
- Equipment Rentals
- Paid Service Calls

Cable Industry's Expenses

- Plant build and maintenance
- Consumer Premise Equipment (CPE)
- License Fees to Programmers
- Head end equipment and licenses
- Marketing and associated activities (measurement, research, sponsorships)
- Salaries, General & Administrative (SG&A)
- Franchise and Government Fees

PART 1 - CABLE INDUSTRY EVOLUTION

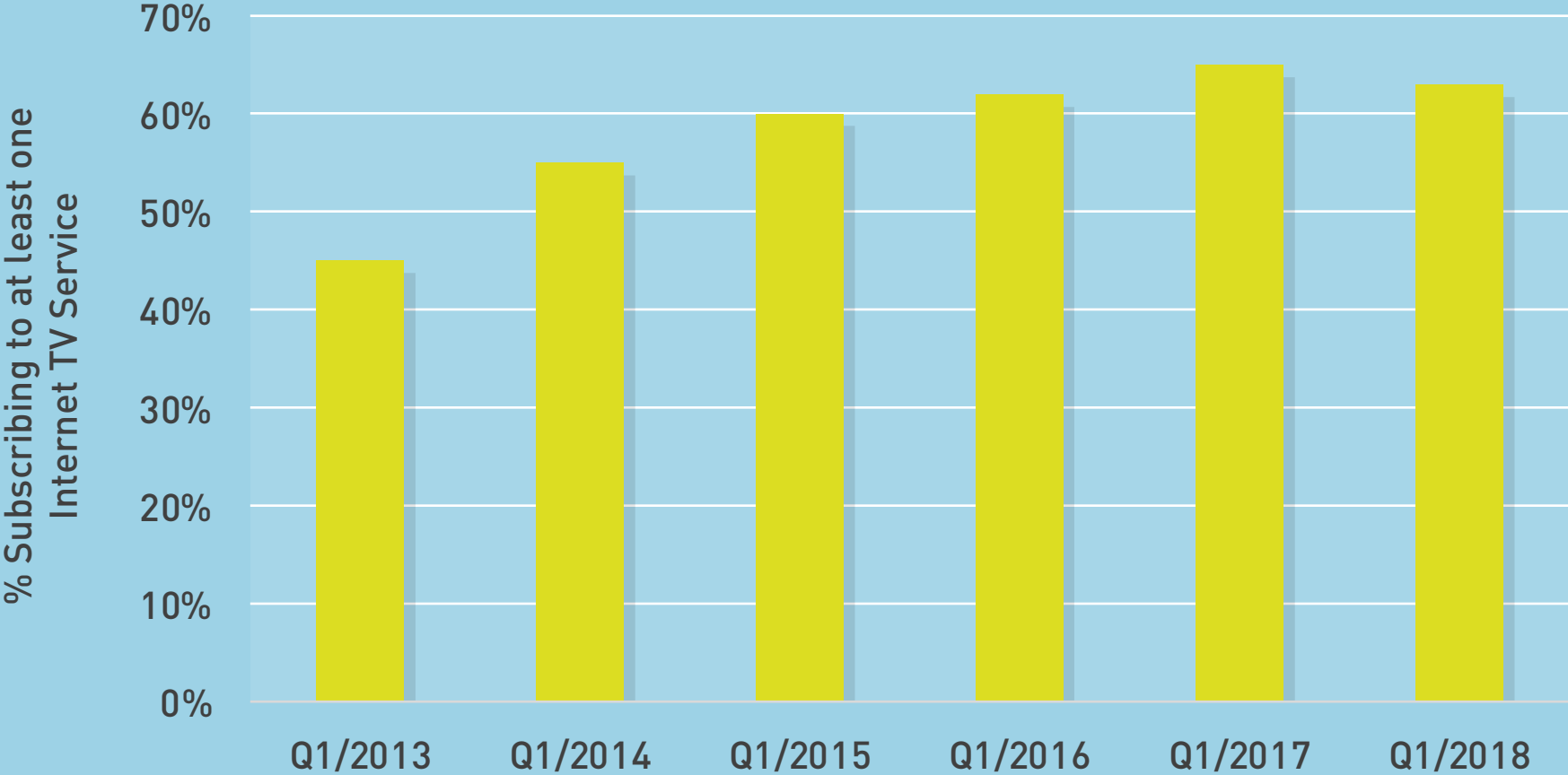
How Internet Speed Works



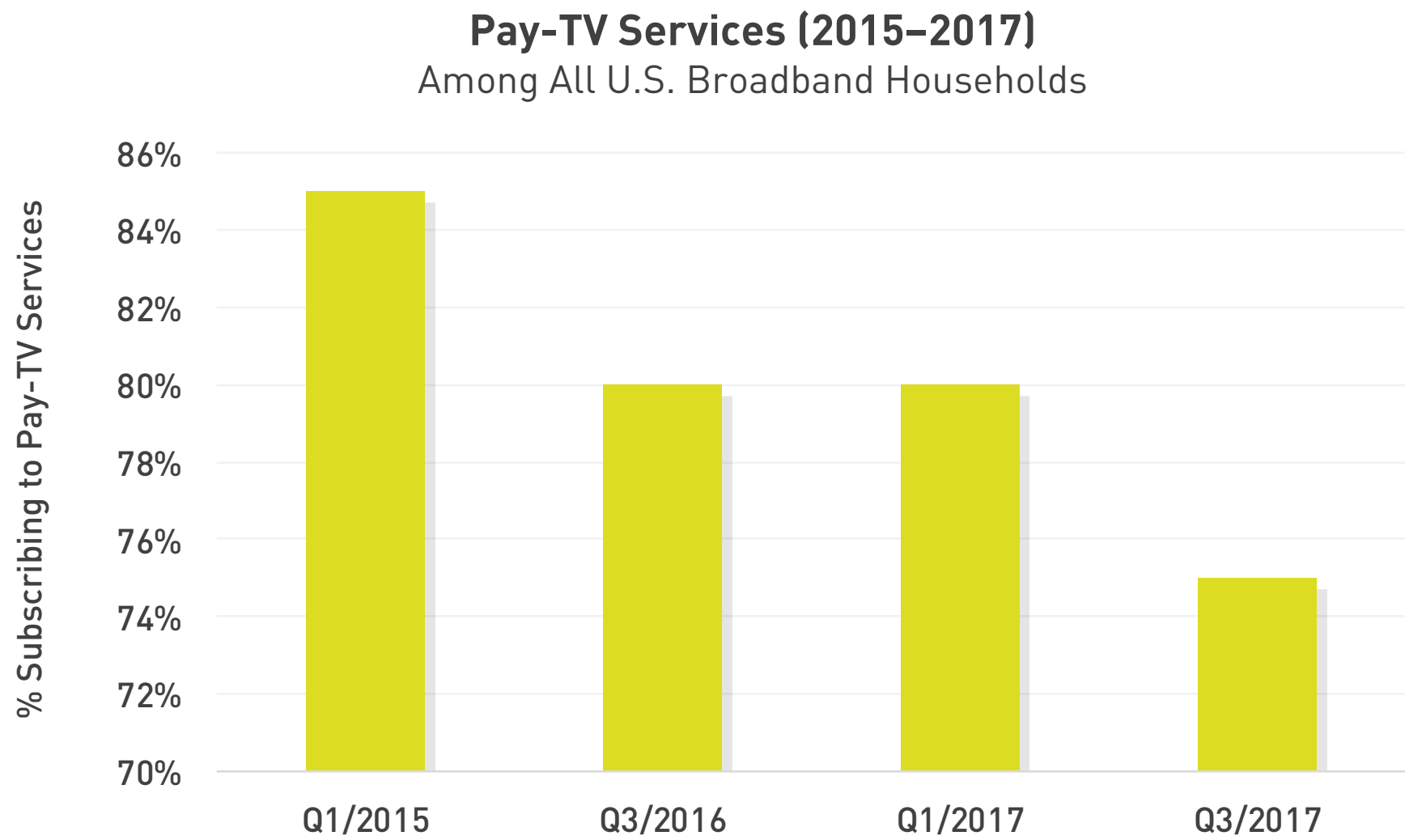
- **Suzy is gaming online** against three of her friends. The high-quality graphics and sound of the online video game are using a lot of bandwidth.
- **Mom is trying to stream a movie.** Because Suzy is already using a lot of bandwidth, the movie keeps buffering.
- **Jimmy is on the computer** surfing the web for a research paper and web sites are slow to load as a result of Suzy and Mom using bandwidth.
- **Joey is in his room snapping and uploading selfies** to his social media accounts. Uploads are taking longer than normal.
- **Dad is using the tablet** to find ideas for dinner and it is taking forever. Looks like dinner will be late tonight. Time to update the internet speed.

PART 1 - CABLE INDUSTRY EVOLUTION

Overall Internet TV Subscription Penetration (2013–2018)
Among U.S. Broadband Households Surveyed



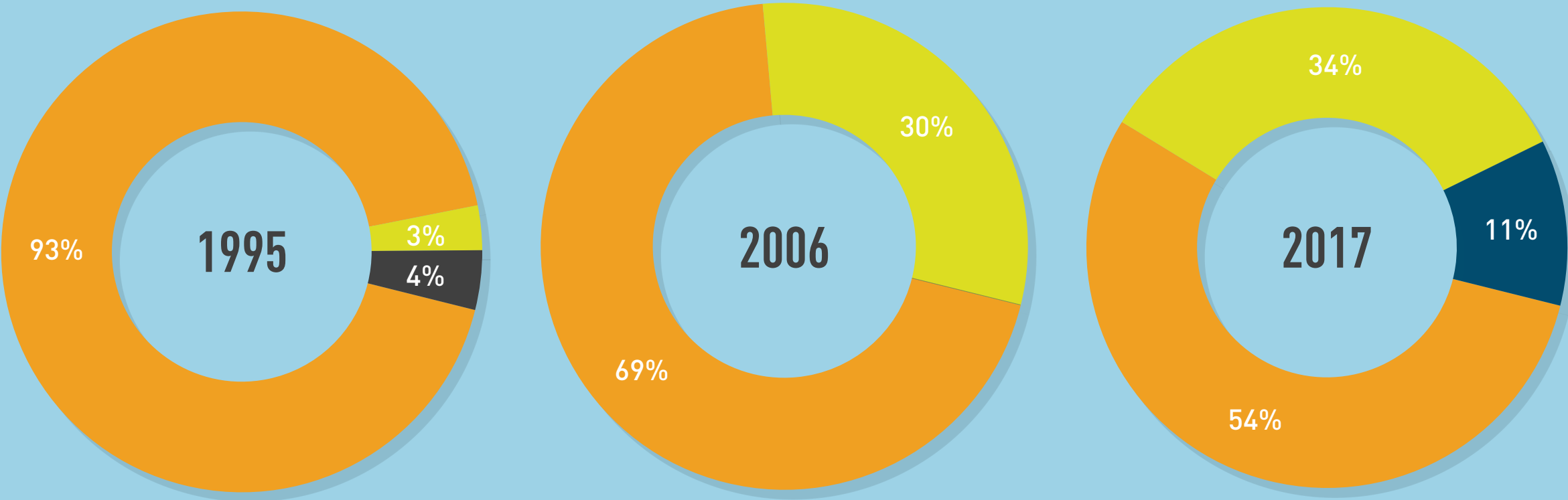
PART 1 - CABLE INDUSTRY EVOLUTION



PART 1 - CABLE INDUSTRY EVOLUTION

Pay-TV Shares Over Time

Cable TV Satellite TV TV from Phone Companies Other



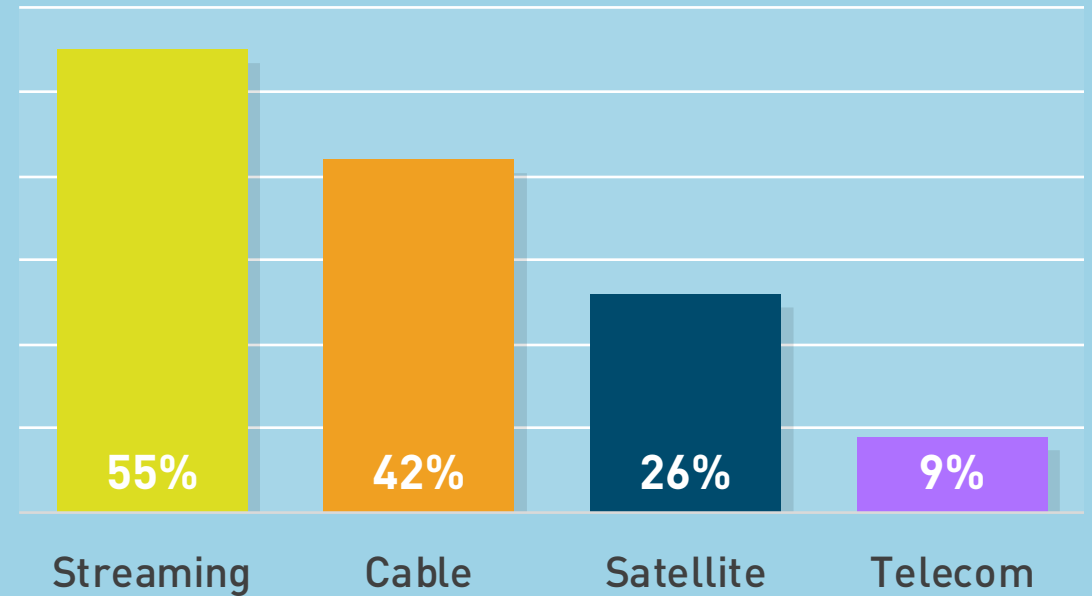
PART 1 - CABLE INDUSTRY EVOLUTION

More TV Choices Than Ever Before



Until the mid-90s,
the only choice for TV
was cable or broadcast

Current Household Video Subscriptions
(Q4 2017)



PART 1 - CABLE INDUSTRY EVOLUTION

Cable's Customer Base



66.4 M

Cable Internet



51.9 M

Television



31.4 M

Phone

How We Stack Up



National



San Bruno Cable

53% - 44%

Broadband

41% - 38%

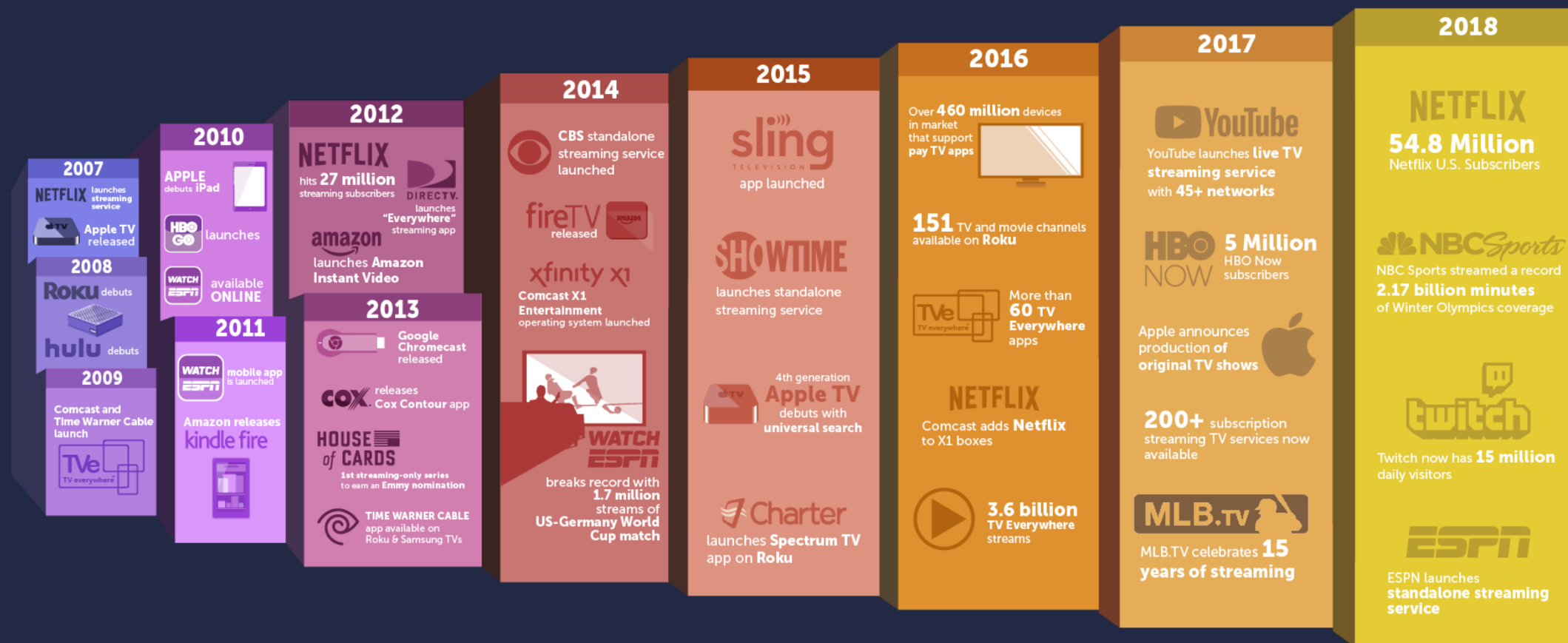
Cable TV

25% - 6%

Phone

OVER A DECADE OF STREAMING TV INNOVATION

MORE DEVICES, SERVICES, AND APPS ENTER THE TV MARKETPLACE EVERY YEAR.
CONSUMERS AND TECHNOLOGY ARE TOGETHER DRIVING THE ENTERTAINMENT EXPERIENCE.



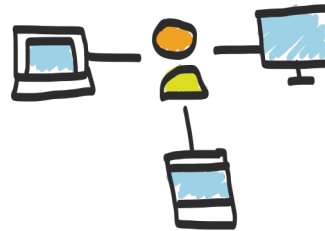
PART 1 - CABLE INDUSTRY EVOLUTION

TV is becoming All Apps

Anytime, Anywhere



Strong video marketplace



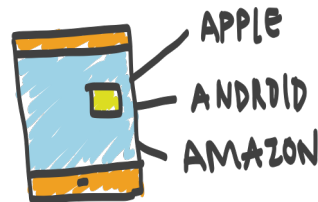
Always connected home



TV is truly everywhere



Merging media devices



Pay TV apps on all devices



TV is getting smarter

The Legacy Industry is Struggling (Video)



- PART 1 - SUMMARY

This section provided you information on:

- The Cable TV industry in the U.S.
- How the internet is changing TV entertainment choices
- The crossroads faced by media companies

In the next section, we will tell you about San Bruno Cable, the improvements we have underway and our own crossroads.

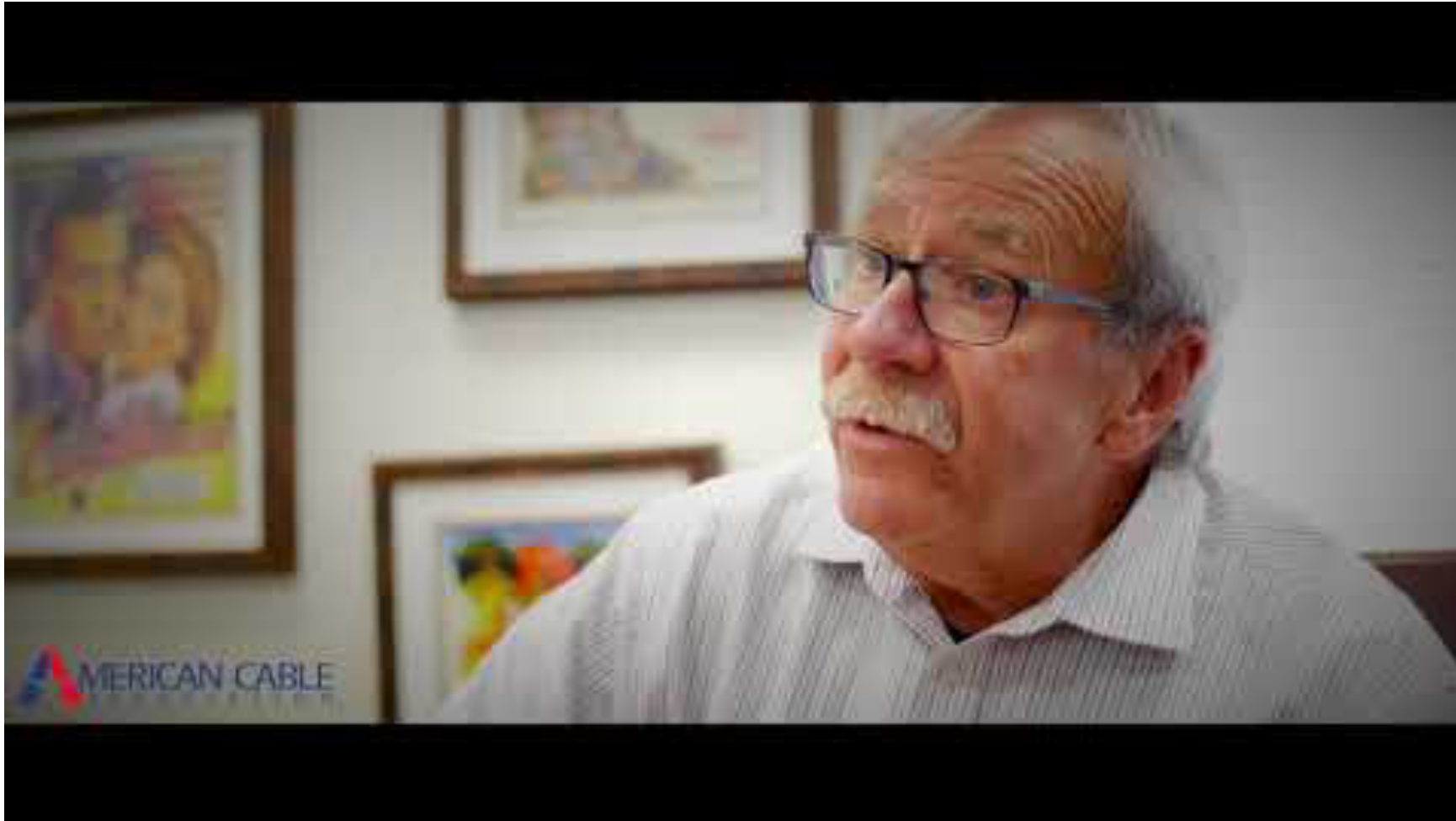


• PART 2 •

San Bruno Cable's Situation

PART 2 - SAN BRUNO CABLE'S SITUATION

American Cable Association Member Story: San Bruno Cable (Video)



PART 2 - SAN BRUNO CABLE'S SITUATION

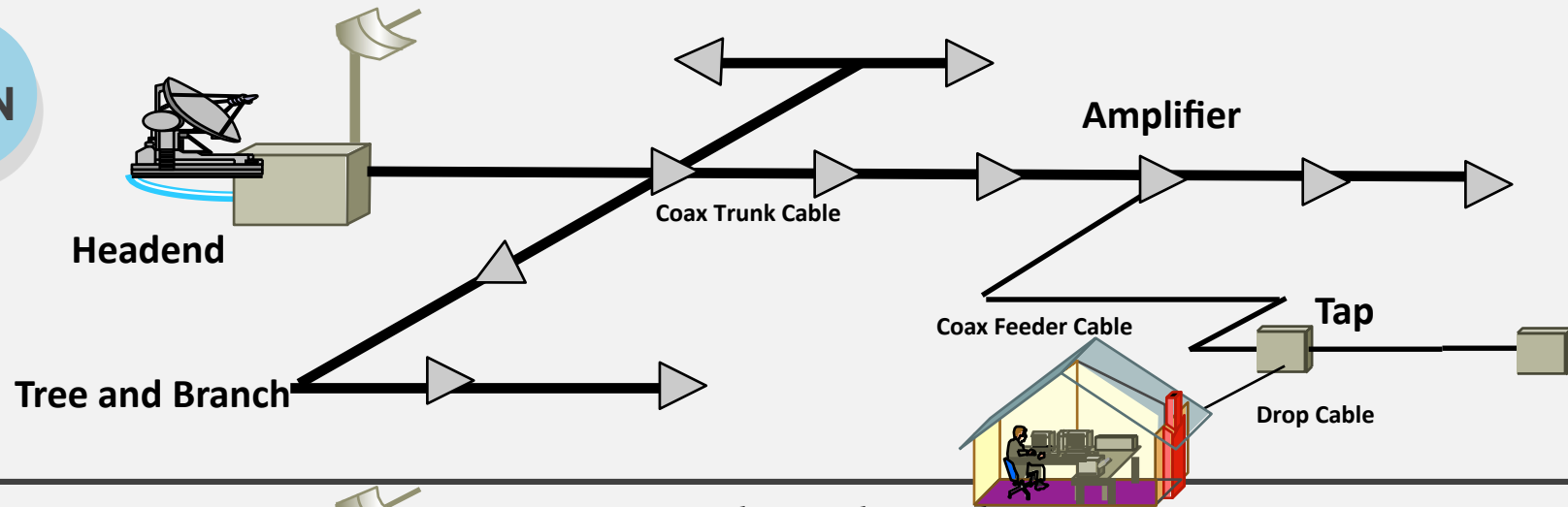
San Bruno's Cable Infrastructure

PROJECT	COST	YEAR	COMMENTS
270 Mhz System and 46.7 miles of cable	\$565,000	1971	12 channel system launched
Additional 13 miles of cable	\$86,000	1975	Expanded to 24 channels, with Set Top Boxes
450 Mhz System Upgrade	\$2,200,000	1985	60 channels fully addressable
750 Mhz System Upgrade	\$7,100,000	1999	117 channels; high speed data
ISP business launch	\$300,000	2002	Launch of broadband internet
Cable VOD launch	\$425,000	2004	Enhanced system functionality
Router Upgrade; 10k CMTS	\$1,700,000	2007	Internet and phone capacity increase
System upgraded to 100% digital	\$230,000	2008	Increased channel capacity
Upgrade to Arris E6000	\$450,000	2012	Enabled enhanced monetization of capacity
Router Upgrade with 10 Gigahertz Cards	\$894,800	2014	Increased internet capacity
Upgraded VOD Storage	\$200,000	2015	Greater Cable VOD capacity
CAP 1000 Equipment Upgrade	\$115,000	2017	Increase HD channel capacity
MDU Fiber Projects (Shelter Creek, Peninsula Place & Crystal Springs)	\$2,200,000	2016-18	Fiber into select MDUs
Router Upgrade Project	\$1,600,000	2018	Increased internet capacity
TOTAL	\$18,065,000	47 Years	

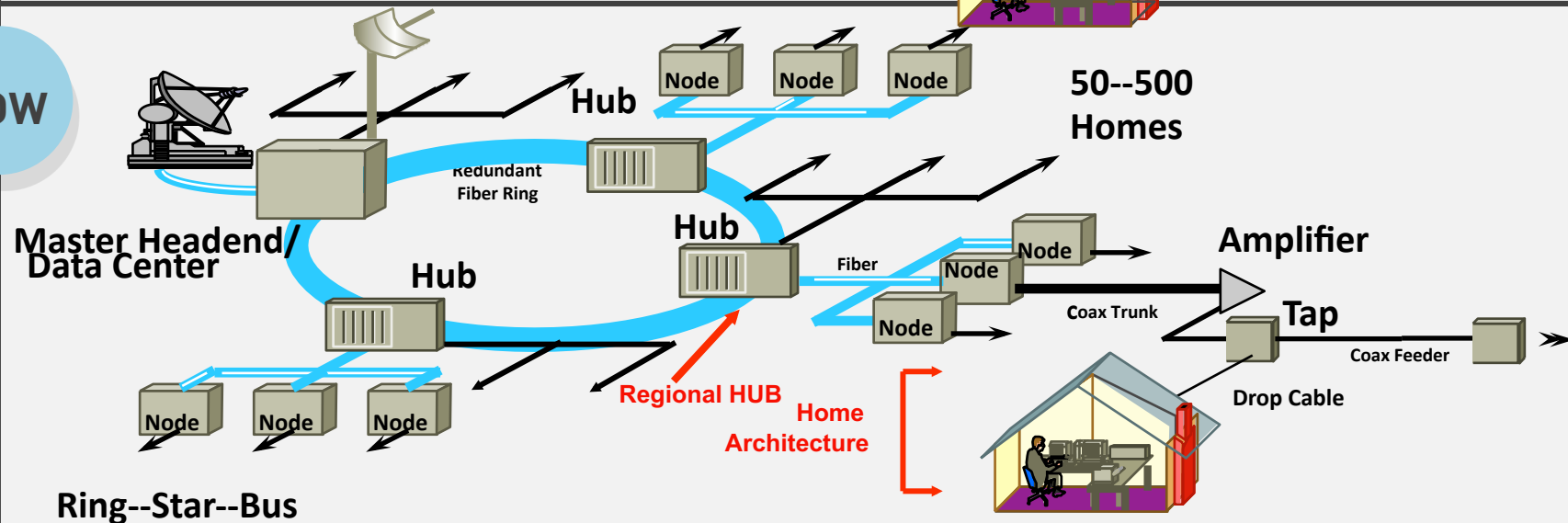
PART 2 - SAN BRUNO CABLE'S SITUATION

San Bruno Cable: CATV to Cable

THEN



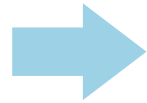
NOW



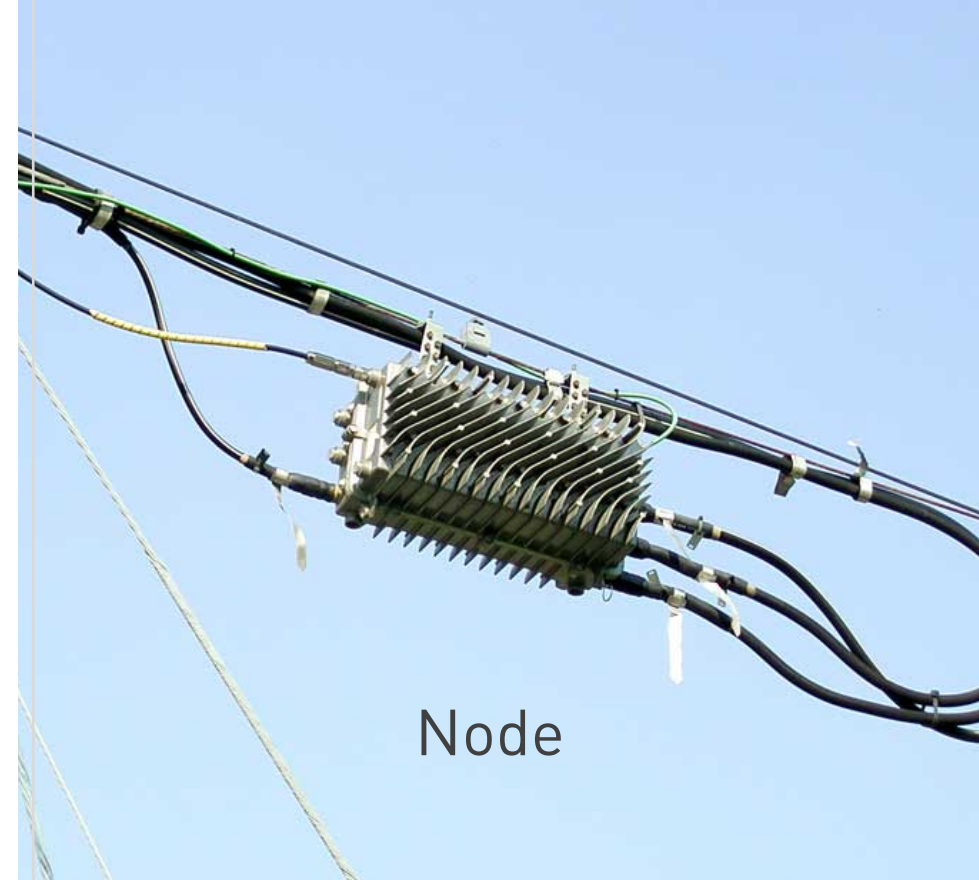
PART 2 - SAN BRUNO CABLE'S SITUATION

System Data

CATV System
"Community Antenna TV"



Cable TV System



Node

San Bruno Cable (SBC)

Fiber Coax Based

 **750**Mhz

Serving San Bruno

 **46%**

Miles of Cable

 **85**

Owens & Operates

 **Channel 1**

PART 2 - SAN BRUNO CABLE'S SITUATION

Performance

■ National ■ San Bruno Cable

2010

55% ■ 44%

Cable TV Penetration

39% ■ 35%

Broadband Penetration

2018

41% ■ 38%

Cable TV Penetration

53% ■ 44%

Broadband Penetration

PART 2 - SAN BRUNO CABLE'S SITUATION

Performance (Continued)

■ National ■ San Bruno Cable

Infrastructure Spend

\$275B

20 years

\$16.5M

47 years

Revenue

\$1.8T

20 years

\$139M

15 years

Revenue per
\$1 Spend

\$6.55

\$7.69

PART 2 - SAN BRUNO CABLE'S SITUATION

Performance (Continued)

San Bruno Coverage

100% homes passed

Age of Head End

20 years

Age of Hybrid Fiber Coaxial Cable Plant

20 years

Cable Operating System

DOCSIS 3.0 (v3.1 in market)

Internet Service Provider (ISP) Business Launched

2002

Video Channels Offered:

396 (105 HD); 4,000 hours Cable VOD

Broadband Speeds

INTERNET SPEED	SERVICE AREA	COMPETITION
5–100 Mbps	100% of homes passed	Yes
Up to 300 Mbps	100% of homes passed after router upgrade (early Dec 2018)	Select Areas
Up to 1 Gbps	17% of homes passed	Select Areas

PART 2 - SAN BRUNO CABLE'S SITUATION

Current Financial Situation & Goals

SBC Per Subscriber / Revenue & Expense

Average Revenue Per User (ARPU)
\$109.54 per month

Average Expense Per Subscriber
\$113.75 per month

Net Margin
-3.7% (\$4.21)

SBC's Business Goals

FY 2018-19 Revenue
\$10.926m

ARPU Goal
\$95

FY 2018-19 Expenses
\$11.056m

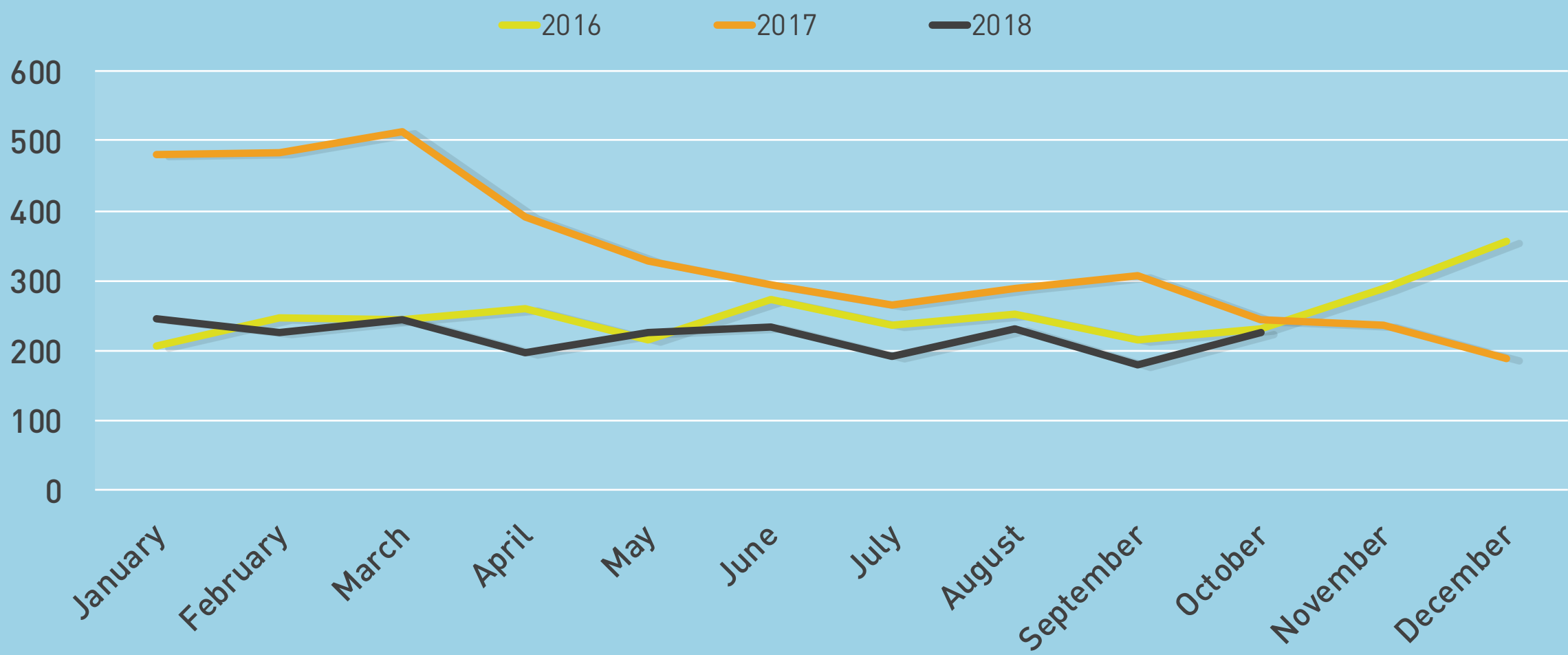
Net Margin Goal
+10%

Cable Fund
-\$14.1m

Subscriber Target
9,600 (+3k increase)

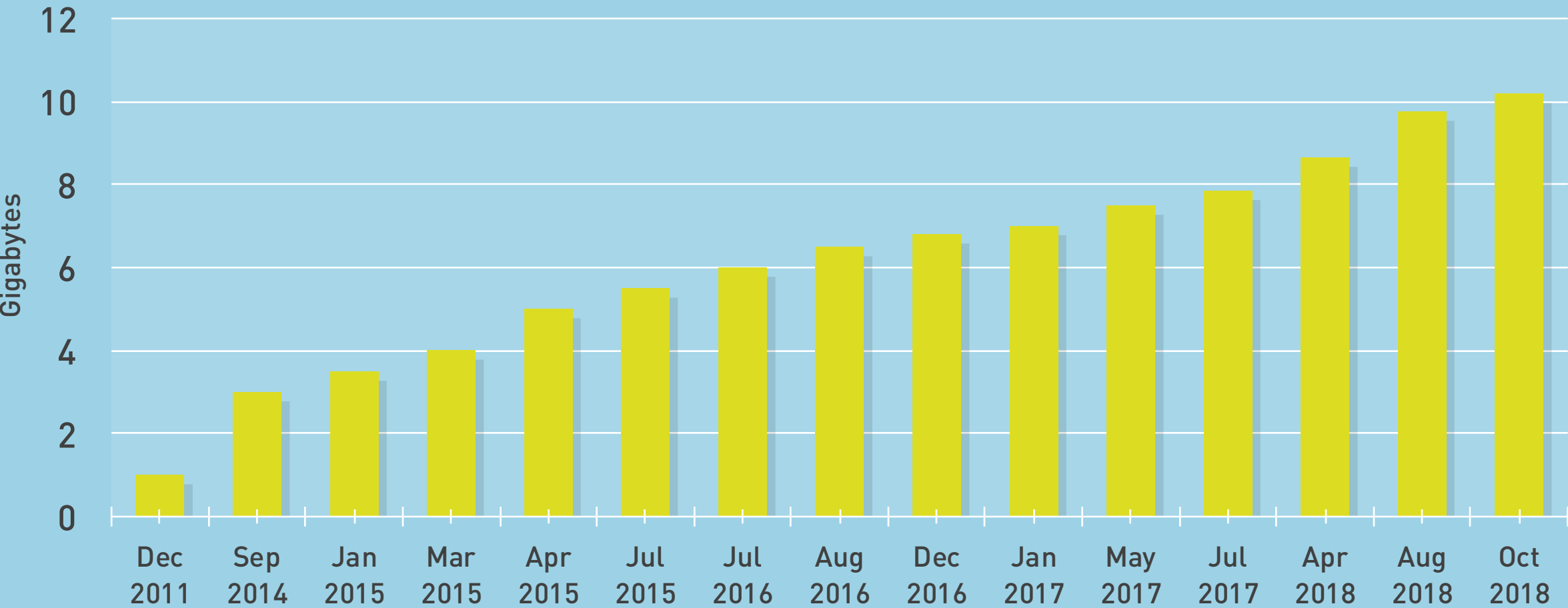
PART 2 - SAN BRUNO CABLE'S SITUATION

San Bruno Cable Service Calls – 2016 to 2018



PART 2 - SAN BRUNO CABLE'S SITUATION

San Bruno Cable's Downstream Usage



PART 2 - SAN BRUNO CABLE'S SITUATION

Number of Subscribers

PRODUCT	SUBSCRIBERS	GROWTH/DECLINE SINCE JULY 2010 (DIGITAL TV UPGRADE)
Broadband + Cable TV	4,858	-8%
Broadband Only	1,813	46%
TV Only	909	-212%
Telephony	870	-7.3%

PART 2 - SAN BRUNO CABLE'S SITUATION

What San Bruno Cable is Doing Right Now



NEW MARKET LEADING PACKAGES

Internet plus local TV.



NEW LOOK & FEEL

Updated TV Guide coming soon to HD set top boxes.



NEW LANGUAGES AVAILABLE IN BASIC

New Chinese, Filipino and Korean channels now included in Basic Programming. Spanish channels already available.



LOW COST PHONE

Coming soon.



PERFORMANCE IMPROVEMENTS

Increased internet capacity, speeds and reliability.



NEW MARKETING

Modest early effort in Hispanic marketing has led to some subscriber growth. More campaigns to follow.



NEW COST CONTROLS

New service deals with vendors to enable cost savings and new low prices for customers.



CHANNEL 1

Upgrades under review.

PART 2 - SAN BRUNO CABLE'S SITUATION

Updated Guide (Video)

Current Guide



PART 2 - SAN BRUNO CABLE'S SITUATION

Preliminary Packages

Proposed New Residential and Business Packages

- Internet plus local TV packages for homes
- Internet plus business phone packages for businesses
- Pricing TBD

PRODUCT	AVAILABILITY
1 Gigabit per second Internet and Local Broadcast Channels	System service areas currently installed with fiber
Up to 300 Megabits per second Internet and Local Broadcast Channels	System service areas with hybrid fiber coax

PART 2 - SAN BRUNO CABLE'S SITUATION

New Packages & Pricing: Business

PRODUCT	AVAILABILITY
1 Gigabit per second Upstream/ 1 Gigabit per second Downstream internet with two dedicated phone lines	System service areas currently installed with fiber
300 Megabits per second Upstream/ 300 Megabits per second Downstream internet with two dedicated phone lines	System service areas currently installed with fiber
75 Megabits per second Upstream / 10 Megabits per second Downstream internet with two dedicated phone lines	System service areas with hybrid fiber coax
50 Megabits per second Upstream / 10 Megabits per second Downstream internet with two dedicated phone lines	System service areas with hybrid fiber coax

PART 2 - SAN BRUNO CABLE'S SITUATION

San Bruno Cable's Crossroads

47

Enterprise has provided competitive service to San Bruno for 47 years



Limited investment in installing fiber in select apartment complexes, with good results



Internet usage on San Bruno Cable is exploding—1 Gig to 11 Gig growth from 2011-18. System needs to provide exponentially better internet connectivity to cater to its customers



System needs to offer higher internet speeds, better data caps and better TV/video package options to serve customers



Crossroads

Proceed with a comprehensive fiber upgrade to compete effectively?


- PART 2 -

SUMMARY

This section provided you information on:

- San Bruno Cable's evolution
- Current subscriber and technical situation
- What the Enterprise is doing right now to better serve customers and control costs
- Where the enterprise stands at this point

In the next section, we will tell you about the enterprise's path forward.



• PART 3 •

The Path Forward

PART 3 - THE PATH FORWARD

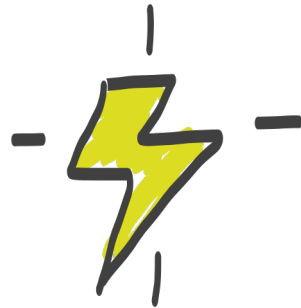
What is Fiber to the Home (FTTH)?

It is a relatively new technology to transmit digital data over fiber lines which extend all the way into the home.

FTTH is remarkable because of...

30-50

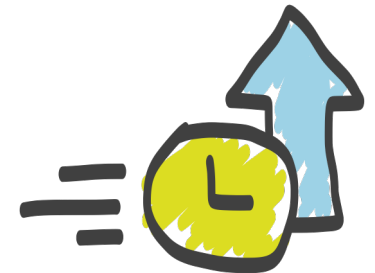
Long life: 30–50
years at least



No electricity in
the fiber lines



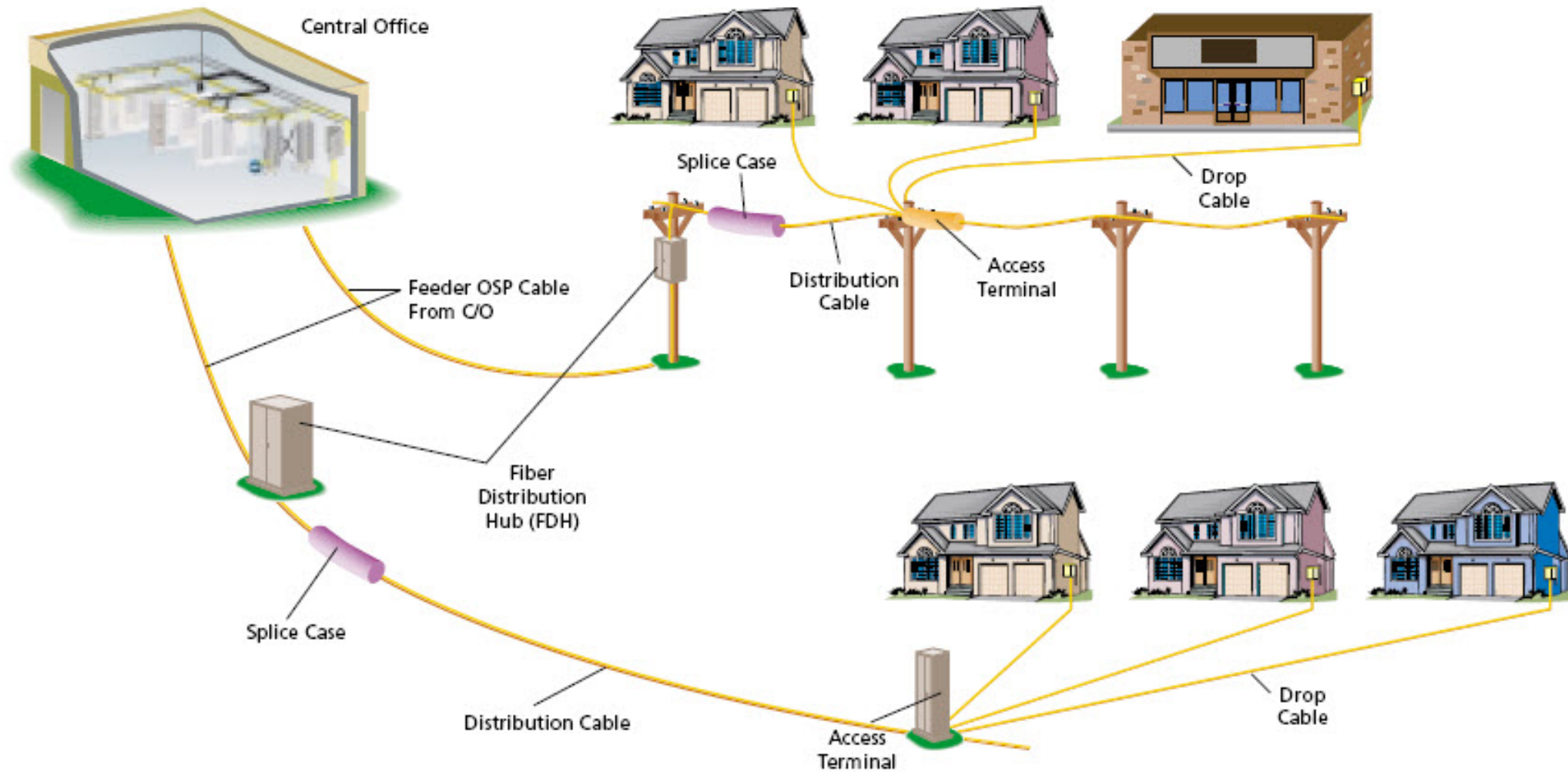
No radiation
hazard



Very scalable
internet speeds

PART 3 - THE PATH FORWARD

FTTX Fiber Architecture



PART 3 - THE PATH FORWARD

Fiber Optic vs. Cable Internet

What's the difference?

Fiber

- Data sent via small, flexible strands of glass that transmit light
- Faster over greater distances

Cable Internet

- Uses cable TV infrastructure to transmit data
- Connection shared with neighbors



Faster and more reliable

- Delivered on a dedicated line and more consistent in speed even during peak usage times.
- It is also less likely to go down during a power outage.
- No electricity involved = reduced fire risk
- Installed to your home and harder to hack.
- Can withstand more temperature fluctuations and be submerged in water.

PART 3 - THE PATH FORWARD

Fiber Will Be Better Than 5G for In-Home Internet

	SBC Fiber	5G
Performance	1GB Down/Up Standard	300 Mbps Standard (1GB possible Source: Verizon 5G release)
Performance During San Bruno Peak Data Usage (9-10 PM)	No variance	Varies per traffic at tower
Cell Towers	None	Up to 240 per square mile (60 per carrier)
Electromagnetic Radiation	None	Thermal and Non-thermal
In home Wi-Fi	Available	Available
Restrictions on Reception	None	Rain fade, line of sight restriction and signal blockage by foliage
Uptime (Reliability)	99.99%	N/A
Customer Service	Local & hands on	Remote

Fiber Buildout Rationale

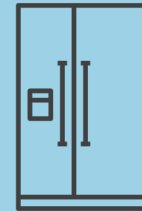
Consumers



More apps =
more internet
bandwidth & speeds



More bandwidth
& faster speeds
= fiber



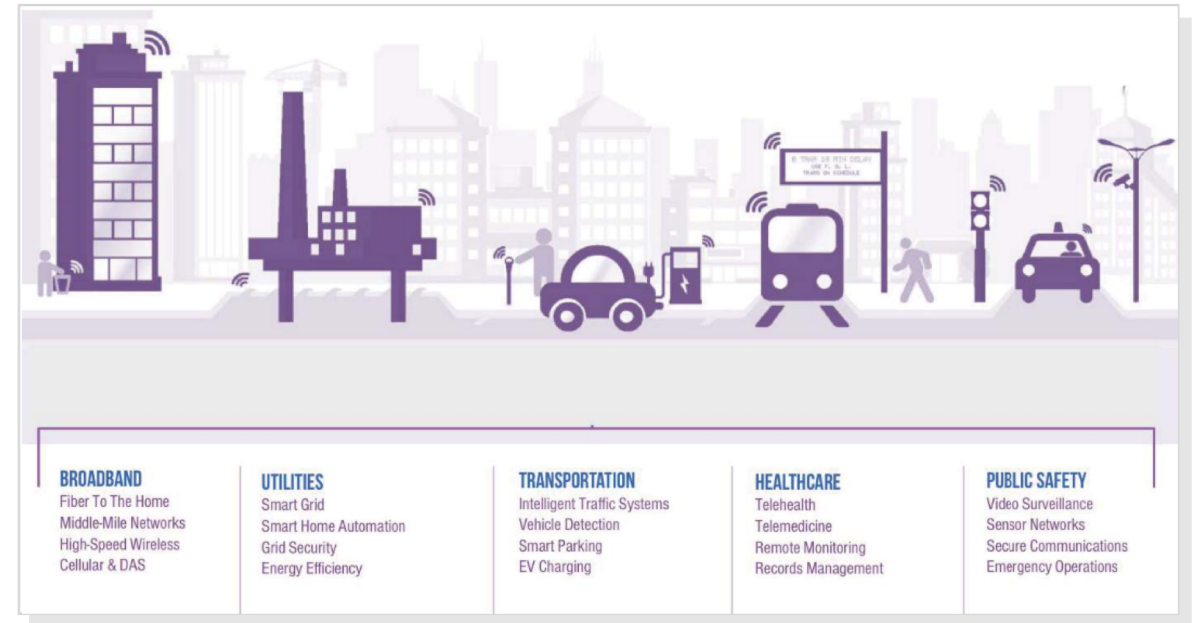
Connected
appliances



Internet
video

PART 3 - THE PATH FORWARD

Fiber Buildout Rationale



PART 3 - THE PATH FORWARD

Fiber Buildout Rationale (Continued)

Fiber...

Improves property
values by

3%

Builds GDP by

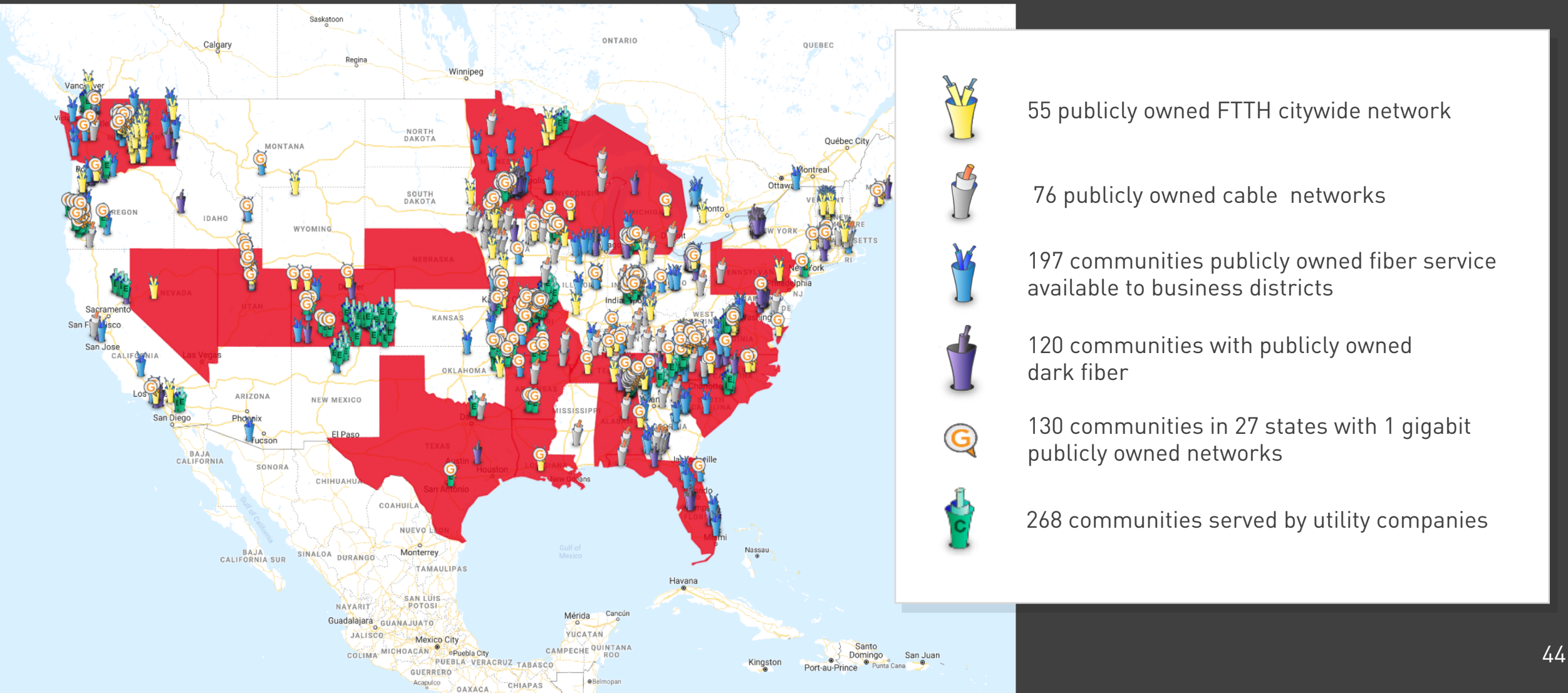
1%

Improves rental
values by

8%

PART 3 - THE PATH FORWARD

State of American Fiber & Broadband Networks – 2018



PART 3 - THE PATH FORWARD

Case Study: Beverly Hills (Video)



PART 3 - THE PATH FORWARD

San Bruno Cable's Performance in Fibered MDUs

17% of San Bruno homes have San Bruno Cable's fiber

All fibered homes are in MDUs

Cost of fiber install: \$2,200,000

Subscribers generate \$2,013,000 in annual subscription revenue with \$420,000 (26%) in post fiber revenue growth

PROPERTY	UNITS	SUBSCRIBERS (% PENETRATION)
Peninsula Place	860	488 (57%)
Crystal Springs	437	367 (84%)
Shelter Creek	1,296	911 (70%)
Total	2,593 (17%)	1,766 (68%)

PART 3 - THE PATH FORWARD

Proposed Fiber Project Costs

\$8,640,751

Network & Fiber
Construction

\$1,819,591

Fixed Equipment

\$10,460,342 + \$1,569,051 =

Working Capital

Contingency (15%)

\$12,029,393

Total



PART 3 - THE PATH FORWARD

Fiber Aspirations: Beverly Hills & San Bruno

BEVERLY HILLS	SAN BRUNO
16,000 homes	15,660 homes
100 miles of fiber	85 miles of fiber
\$31M	\$12 M
5 years to complete	2 years to complete

PART 3 - THE PATH FORWARD

Internet Traffic Growth driven by Video

NETFLIX 15%

Netflix alone constitutes 15%
of the World's Internet Traffic
(Source: Mashable)



An explosion of online video could
triple bandwidth consumption
again in the five 5 years.

PART 3 - THE PATH FORWARD

Benefits of Fiber



Future proofed



1GB and higher internet speeds



Enterprise will be internet focused—for data, video and phone services



With TV Guide's new look and feel, users will have easy navigation



Apps and IPTV to follow —Bring Your Own Device the goal



TV channels per San Bruno customer preferences

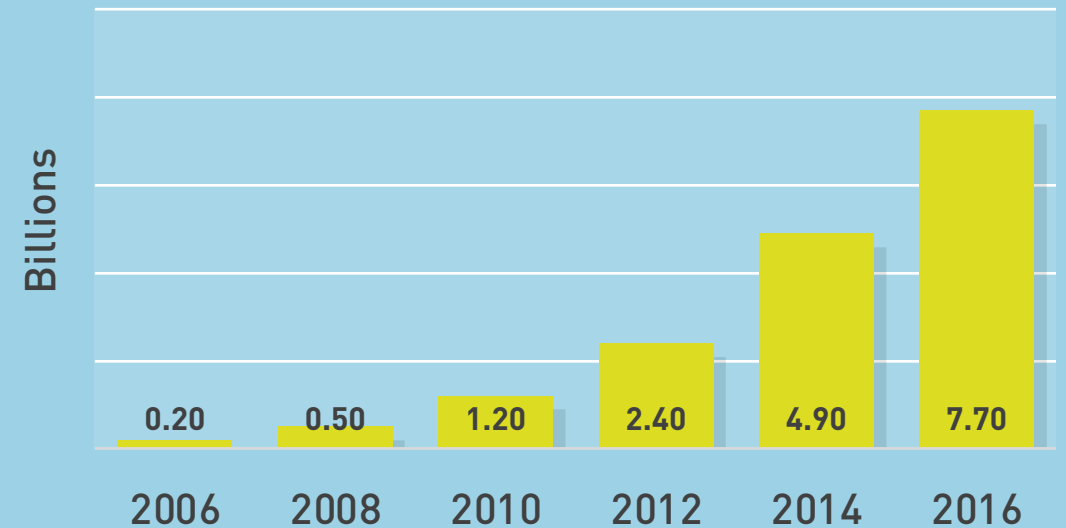
PART 3 - THE PATH FORWARD

Cable TV Trends

Traditional TV

- High, rising costs
- Too Many Channels
- Clunky cable boxes
- Outdated practices
- Inflexibility

Broadcast Retransmission Fee – Projected Revenue Growth



PART 3 - THE PATH FORWARD

Potential Streaming TV Partners

philo


PlayStationVue

fubo^{TV}

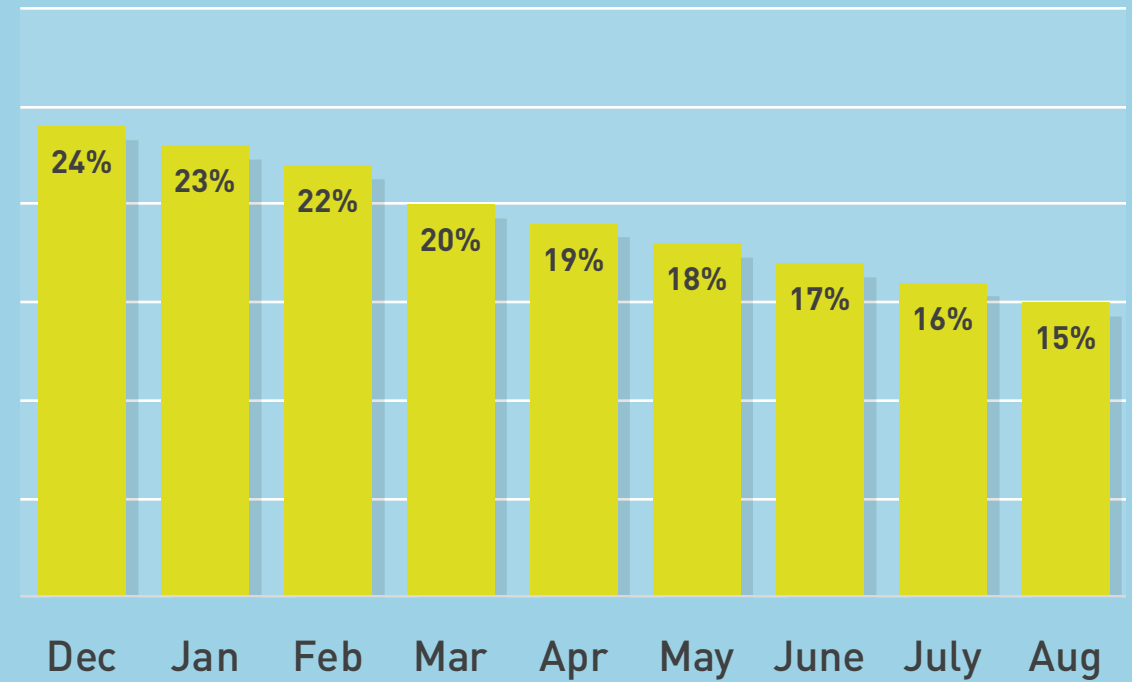
CuriosityStream


slingTM
TELEVISION

hulu

 YouTubeTV

As retransmission fees rose over the last decade, network primetime audiences fell by more than half.



PART 3 - THE PATH FORWARD

Cost Comparison: AT&T & San Bruno Cable

Today, a San Bruno subscriber would pay these regular rates without a contract:

PRODUCT	AT&T NO CONTRACT	AT&T INTERNET + DIRECTV (OUT OF CONTRACT)	SAN BRUNO CABLE CURRENT (NO CONTRACT)	SAN BRUNO CABLE NEW (NO CONTRACT)
Internet Speed	Up to 100 Mbps (18-50 Mbps is typical)	Up to 100 Mbps (18-50 Mbps is typical)	0-300 Mbps (30- 75 Mbps is typical)	1 Gig Fiber
Internet + Limited TV Package	\$118 per mo.	\$118/mo.	\$65.77/mo.	TBD
One time Fees	\$134	\$134	\$100	\$100
Additional Monthly Surcharges	Broadcast Fee (typically \$8/mo.)	Broadcast Fee (typically \$8/mo.)	None	None
Month 1 Service Total	\$252	\$252	\$165.77	TBD
Year 1 Service Total	\$1,646	\$1,646	\$889.24	TBD

- PART 3 - SUMMARY

This section provided you information on:

- Fiber to the home technology and its benefits
- Proposed project costs
- San Bruno Cable's path forward

NEXT STEP

Feedback requested from City Council to:

- Develop a business plan for San Bruno Municipal Cable's fiber upgrade
- Research and develop financial options to fund the upgrade

Comments & Questions